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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/720,244	11/25/2003	Naohiro Takeshita	10517/192	4342

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EXAMINER

DOVE, TRACY MAE

ART UNIT	PAPER NUMBER
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1745

DATE MAILED: 11/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/720,244

Applicant(s)

TAKESHITA ET AL.

Examiner

Tracy Dove

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 11/25/06.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☒ Other: IDS 6/6/06.

DETAILED ACTION

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

The information disclosure statements (IDS) submitted on 11/25/03 and 6/6/06 have been considered by the examiner.

Specification

The disclosure is objected to because of the following informalities: at paragraph [0015] "at least one second sell" should be "at least one second cell".

At paragraph [0018], the specification states "As shown in FIG. 2, each of the cells 20, 20b includes...", however, FIG. 2 does not contain reference numeral 20b.

At paragraph [0019], the specification states "As shown in FIG. 3A and FIG. 3B, in each of the separators 30, 30b, two opening...", however, neither FIG. 3A nor FIG. 3B contain reference numeral 30b. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-14 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for 1) a fuel cell stack comprising a first plurality of cells having a first pressure loss and a second plurality of cells having a second pressure loss wherein the second

Art Unit: 1745

pressure loss is less than the first pressure loss and/or 2) a fuel cell stack comprising a first plurality of cells having a first water proofing and a second plurality of cells having a second water proofing wherein the second water proofing prevents flooding more than the first water proofing, does not reasonably provide enablement for a fuel cell stack having any kind of fuel cells having any of an infinite number of different characteristics. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make or use the invention commensurate in scope with these claims. At least claims 1 and 14 recite fuel cells having *different characteristics*, which is overly broad.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "type" in the claims is a relative term which renders the claim indefinite. The term "type" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

The term "normal cell" in the claims is a relative term which renders the claim indefinite. The term "normal cell" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Art Unit: 1745

The term "small pressure loss type cell" in the claims is a relative term which renders the claim indefinite. The term "small pressure loss type cell" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Claim 5 recites the limitation "the other end portion". There is insufficient antecedent basis for this limitation in the claim.

Claim 6 recites the limitation "the same end portion". There is insufficient antecedent basis for this limitation in the claim.

Claim 7 recites "disposed in a portion in which a shortage of gas supply is *likely* to occur", which is indefinite because the scope of the claim is not clearly defined.

Claim 11 recites "disposed in a portion in which flooding is *likely* to occur", which is indefinite because the scope of the claim is not clearly defined.

The term "high drainage performance type cell" in the claims is a relative term which renders the claim indefinite. The term "high drainage performance type cell" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Claim 14 recites the limitation "the first cell". There is insufficient antecedent basis for this limitation in the claim. Examiner suggests "the plural first cells".

To the extent the claims are understood in view of the numerous 35 U.S.C. 112 rejections above, note the following prior art rejections.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Hamada et al., JP 2001-357869.

Hamada teaches a solid high polymer type fuel cell stack in which performance of unit cells at the two ends of the stack are prevented from dropping. The fuel cell stack is structured such that a plurality of unit cells are laid one over another according to one of the following: 1) the water repellency of the cathode gas diffusion layer of each unit cell located at the stack ends is made lower than that of the unit cells located elsewhere in the stack; 2) the gas permeability of the cathode gas diffusion layer of each unit cell located at the ends is made higher than that of the unit cells located elsewhere in the stack; 3) the specific surface area of the carbon material of the mixture layer in the cathode of each unit cell located at the ends is made greater than that of the unit cells located elsewhere in the stack; and, 4) the pressure loss in the cathode side gas passage of each unit cell located at the ends is made smaller than that of the unit cells located elsewhere in the stack (abstract). The depth of a separator of a cell unit located at an end of the stack is increased by 10% compared with a gas passageway of a single cell located in other parts of the stack (0031). Reactant gas is supplied from the clamping plates located at both ends of the stack (0013). Thus the claims are anticipated.

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Art Unit: 1745

Claims 1-9 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Sakai, JP 63-119166.

Sakai teaches a fuel cell stack wherein the reliability and performance of the fuel cell is improved by increasing a cross-sectional area of the fuel gas flow passage in a unit cell located at a lower part of a layered stack. See the Figures. Thus the claims are anticipated.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tracy Dove whose telephone number is 571-272-1285. The examiner can normally be reached on Monday-Thursday (9:00-7:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

November 1, 2006


TRACY DOVE
PRIMARY EXAMINER